

WHAT IS CLAIMED IS:

1 1. An apparatus for determining a channel state of a set
2 top box, the apparatus comprising:

3 a sensing stage capable to detect light intensity from
4 various positions on a display and generating output
5 signals based on light intensity detected from each of the
6 various positions;

7 a comparison stage communicatively coupled to the
8 sensing stage and capable to generate digital values by
9 comparison of each generated output signals with a
10 threshold value; and

11 an interface communicatively coupled to the sensing
12 stage and capable to generate a feedback signal based upon
13 the digital values to indicate a channel state of the set
14 top box.

1 2. The apparatus of claim 1 wherein the feedback signal
2 is transmitted to a companion box device for processing,
3 thereby permitting the companion box device to detect the
4 channel state of the set top box.

1 3. The apparatus of claim 1 wherein the sensing stage
2 comprises a plurality of light sensing devices, each of the

3 light sensing devices capable to detect light intensity at
4 a corresponding position on the display.

1 4. The apparatus of claim 1 wherein the sensing stage
2 comprises an array of light sensing devices capable to
3 detect light intensity at the various positions on the
4 display.

1 5. An apparatus for detecting a channel state of a set
2 top box, the apparatus comprising:
3 a sensing stage capable to sense output light from a
4 plurality of light-sensing elements in a display of a set
5 top box;
6 an engine capable to determine a channel state of the
7 display based on the output;
8 a channel state analysis engine capable to compare the
9 determined channel state with a desired channel state; and
10 a response engine capable to send a change channel
11 command to the set top box if the determined channel state
12 does not match the desired channel state.

1 6. A method of determining a channel state of a set top
2 box, the method comprising:

3 detecting states of light emitting devices in a
4 display of a set top box;
5 generating an analog value based on each detected
6 state;
7 comparing each analog value with a threshold value and
8 generating a digital value for each compared analog value;
9 and
10 transmitting to a companion box device a bit stream
11 having the generated digital values to permit the companion
12 box device to determine a channel state of the set top box.

1 7. A method of determining a channel state of a set top
2 box, the method comprising:
3 detecting states of light emitting devices in a
4 display of a set top box;
5 generating a feedback signal based on the detected
6 states;
7 determining a channel state of the set top box based
8 on the feedback signal; and
9 comparing the determined channel state with a desired
10 channel state.

1 8. A set top box channel state system, comprising:

2 a device including a plurality of light-sensing
3 elements communicatively coupled to a display of a set top
4 box, the display including a plurality of light emitting
5 devices; and

6 a companion box device communicatively coupled to the
7 light-sensing elements, the companion box device including

8 an infrared blaster capable to send commands via
9 an IR beam to the set top box,

10 a character recognition engine capable to
11 determine set top box channel state as displayed on
12 the display based on the output of the light-sensing
13 elements,

14 a channel state analysis engine communicatively
15 coupled to the character recognition engine and
16 capable to determine if the channel state matches a
17 desired channel state, and

18 a response engine communicatively coupled to the
19 analysis engine and the IR blaster and capable to
20 command the IR blaster to send a change channel
21 command via IR beam to the set top box if the channel
22 state does not match the desired channel state.

1 9. The set top box channel state system of claim 8,
2 wherein the plurality of light-sensing elements is equal in
3 number to the plurality of light emitting devices in the
4 display.

1 10. The set top box channel state system of claim 8,
2 wherein the light-sensing elements are arranged in an
3 array.

1 11. The set top box channel state system of claim 10,
2 wherein the array includes 32 by 16 light-sensing elements.

1 12. The set top box channel state system of claim 8,
2 wherein the device includes a second display configured to
3 display the set top box channel state.

1 13. The set top box channel state system of claim 8,
2 wherein the light-sensing elements include photodiodes.

1 14. A method of detecting a channel state of a set top
2 box, the method comprising:
3 sampling output from a plurality of light-sensing
4 elements coupled to a display of a set top box;

5 determining a channel state of the display based on
6 the output;
7 comparing the determined channel state with a desired
8 channel state; and
9 sending a change channel command to the set top box if
10 the determined channel state does not match the desired
11 channel state.

1 15. The method of claim 14, wherein the determining the
2 channel state includes using character recognition
3 software.

1 16. The method of claim 14, wherein the determining the
2 channel state includes comparing the output with values in
3 a look-up table.

1 17. The method of claim 14, wherein the light-sensing
2 elements are photodiodes.

1 18. The method of claim of claim 14, wherein the plurality
2 of light-sensing elements is equal in number to a plurality
3 of light-emitting devices in the display.

1 19. The method of claim 14, wherein the plurality of
2 light-sensing elements are arranged in an array.

1 20. The method of claim 19, wherein the array includes 32
2 by 16 light-sensing elements.

1 21. The method of claim 14, further comprising displaying
2 the determined channel state on a second display.

1 22. A machine-readable medium having stored thereon
2 instructions to:

3 sample output from a plurality of light-sensing
4 elements coupled to a display of a set top box;

5 determine a channel state of the display based on the
6 output;

7 compare the determined channel state with a desired
8 channel state; and

9 send a change channel command to the set top box if
10 the determined channel state does not match the desired
11 channel state.

1 23. The machine-readable medium of claim 22, wherein the
2 determining the channel state includes using character
3 recognition software.

1 24. The machine-readable medium of claim 22, wherein the
2 determining the channel state includes comparing the output
3 with values in a look-up table.

1 25. The machine-readable medium of claim 22, further
2 comprising an instruction to display the determined channel
3 state on a second display.

1 26. A system for detecting a channel state of a set top
2 box, the method comprising:

3 means for sampling output from a plurality of light-
4 sensing elements coupled to a display of a set top box;

5 means for determining a channel state of the display
6 based on the output;

7 means for comparing the determined channel state with
8 a desired channel state; and

9 means for sending a change channel command to the set
10 top box if the determined channel state does not match the
11 desired channel state.